What is claimed is:

1. A communications channel system for reducing arbitration overhead comprising:

a first channel node having a first port and a second port, each port supporting a fibre-channel arbitrated-loop serial communications channel, wherein each one of the ports arbitrates for control of that port's attached communications channel; and

an arbitration-and-control apparatus to reduce arbitrated-loop overhead, wherein the arbitration-and-control apparatus arbitrates for control of a loop of the communications channel and, after control is achieved, maintains control of the communications channel as long as a predetermined amount of data is available within control of the channel node.

2. The system according to claim 1, further comprising:

a channel-node circuit chip, the chip having an on-chip data buffer, wherein the predetermined amount of data includes a predetermined amount of on-chip data within the on-chip data buffer; and

an off-chip memory, wherein the predetermined amount of data further includes a predetermined amount of off-chip data within the off-chip memory that is distinct from the predetermined amount of on-chip data.

3. The system according to claim 2, wherein the predetermined amount of on-chip data includes a programmable amount of data.

4. The system according to claim 2, wherein the predetermined amount of off-chip data includes a programmable amount of data.

5. The system according to claim 2, wherein the predetermined amount of on-chip data includes a programmable amount of data, the predetermined amount of off-chip data includes a programmable amount of data, and the predetermined amount of off-chip data is a different amount than the predetermined amount of on-chip data.

6. The system according to claim 5, further comprising:

a magnetic-disc-storage drive operatively coupled to the first channel node; and

a computer system having a second channel node, wherein the second channel node is operatively coupled to the first channel node in a fibre-channel loop in order to transfer data between the first and second channel nodes through the fibre-channel arbitrated-loop serial communications channel.

7. The system according to claim 1, further comprising:

a magnetic-disc-storage drive operatively coupled to the first channel node; and

a computer system having a second channel node, wherein the second channel node is operatively coupled to the first channel node in a fibre-channel loop in order to transfer data between the first and second channel nodes through the fibre-channel arbitrated-loop serial communications channel.

8. A disc drive comprising:

a rotatable disc;

a transducer in transducing relationship to the rotating disc;

a channel node having a first port and a second port, each port supporting a fibre-channel arbitrated-loop communications channel, each communications channel including a cyclic-redundancy code within data transmissions on the communications channel, the channel node operatively coupled to the transducer to communicate data; and

an arbitration-and-control apparatus operatively coupled to the channel node to reduce arbitrated-loop overhead, wherein the arbitration-and-control apparatus arbitrates for control of a loop of the communications channel and, after control is achieved, maintains control of the communications channel as long as a predetermined amount of data is available within control of the channel node.

9. The disc drive according to claim 8, further comprising:

a channel-node circuit chip within the channel node, the chip having an on-chip data buffer, wherein the predetermined amount of data includes a predetermined amount of on-chip data within the on-chip data buffer; and

an off-chip memory, wherein the predetermined amount of data further includes a predetermined amount of off-chip data within the off-chip memory that is distinct from the predetermined amount of on-chip data.

10. A communications method comprising steps of:

(a) arbitrating for control of a loop of a fibre-channel arbitrated-loop serial communications channel; and

(b) maintaining control of the loop of the communications channel as long as a predetermined minimum amount of data is available within control of the channel node, whereby arbitrated-loop overhead is reduced.

11. The method according to claim 10, wherein the maintaining step (b) further includes steps of:

(b)(i) determining an on-chip amount of data available in a channel-node circuit chip;

(b)(ii) determining an off-chip amount of data available in an off-chip memory; and

(b)(iii) comparing the on-chip amount of data available to a predetermined minimum-required amount of on-chip data;

(b)(iv) comparing the off-chip amount of data available to a predetermined minimum-required amount of off-chip data; and

(b)(v) maintaining control of the loop based on these comparisons.

12. The method according to claim 11, wherein the maintaining step (b) further includes a step of

(b)(vi) programmably changing the predetermined minimum-required amount of on-chip data and the predetermined minimum-required amount of off-chip data.

13. The method according to claim 11, wherein the maintaining step (b) further includes a step of

(b)(vii) programmably changing the predetermined minimum-required amount of off-chip data to a different amount than the predetermined minimum-required amount of on-chip data.

14. The method according to claim 11, wherein the maintaining step (b) further includes a step of

(b)(viii) programmably changing the predetermined minimum-required amount of off-chip data.

15. The method according to claim 10, further comprising a step of

(c) transferring data through the fibre-channel arbitrated-loop serial-communications channel between a magnetic-disc-storage drive that is operatively coupled to the first channel node and a computer system having a second channel node, wherein the second channel node is operatively coupled to the first channel node by the fibre-channel arbitrated-loop serial-communications channel.

16. A fibre-channel node controller system for reducing arbitration overhead comprising:

a first channel node having a first port and a second port, each port supporting a fibre-channel arbitrated-loop serial communications channel, each communications channel including a cyclic-redundancy code within data transmissions on the communications channel; and

arbitration-and-control means for reducing arbitrated-loop overhead.

17. The system according to claim 16, wherein the arbitration-and-control means arbitrates for control of a loop of the communications channel and, after control is achieved, maintains control of the communications channel as long as a predetermined amount of data is available within control of the channel node.